The architecture and operation of the CMS Tier-0

The Tier-0 processing system is the initial stage of the multi-tiered computing system of CMS. It takes care of the first processing steps of recorded proton-proton collisions at the LHC at CERN. The automated workflows running in the Tier-0 contain both low-latency processing chains for time-critical applications and bulk chains to archive the recorded data offsite the host laboratory. It is a mix between an online and offline system, because the data the CMS DAQ writes out initially is of a temporary nature. Most of the complexity in the design of this system comes from this unique combination of online and offline use cases and dependencies. In this talk, we want to present the software design of the CMS Tier-0 system and present an analysis of the 24/7 operation of the system in the 2009/2010 data taking periods.